

RETURN

(120)

TO AN ADDRESS of the House of Commons, dated November 29, 1911, praying for a copy of all correspondence since July 1, 1896, to the present date, between the Government of Canada and the governments of the several provinces on the subject of assistance to provincial railways and other provincial public works.

W. J. ROCHE,

Secretary of State.

OTTAWA, March 1, 1912.

DEPARTMENT OF RAILWAYS AND CANALS,

OTTAWA, January 11, 1912.

SIR,—I have the honour, by direction, to state in reply to an Address of the House of Commons dated November 29, 1911, that in so far as the Department of Railways and Canals is concerned, there does not appear to have been any correspondence since July, 1896, with the governments of the several provinces on the subject of assistance to provincial railways and other provincial public works.

I have the honour to be, sir,

Your obedient servant,

L. K. JONES,

Secretary.

THOMAS MULVEY, Esq.,

Under Secretary of State,
Ottawa.

P.C. 259.

To the Right Honourable Sir Wilfrid Laurier, P.C., Premier of the Dominion of Canada, and the Honourable the Government of Canada.

THE PETITION OF THE UNDERSIGNED RESPECTFULLY SHEWETH:

Your petitioners are residents, settlers and property owners in the agricultural municipalities of Delta, Surrey, Langley, Matsqui, Sumas, and Chilliwack, in the district of New Westminster, in the Province of British Columbia.

Your petitioners desire to urge the great necessity existing, for railway communication between the municipal districts and the coast cities of the province by means of a bridge over the Fraser river at the city of New Westminster, thereby giving us access to the markets of our own province.

That the section of country in which your petitioners reside, has not enjoyed, in common with more favoured portions of the Dominion, the great measure of prosperity that has been vouchsafed, during the past few years. This fact is largely owing to the almost utter lack of facilities for reaching our markets.

That the lands within the municipalities referred to are largely undeveloped, waste and unproductive and in great need of population.

That your petitioners believe the construction of the proposed railway and bridge, will very materially assist in promoting a change in the existing order of things by affording a means of ready access to the markets; it will also cause a large influx of population, and thus the lands will become developed and productive.

Your petitioners beg respectfully to direct the attention of the Honourable the Government of the Dominion to the fact that a similar petition, is now being prepared for presentation, strongly urging the Provincial Government of British Columbia, to construct, to a point at least as far east as Chilliwack, and operate as a provincial work, this very important railway and bridge connection with the coast cities.

Your petitioners also pray, that a liberal subsidy may be granted at the ensuing session to aid in such government construction of both railway and bridge.

And as in duty bound your petitioners will ever pray.

We the undersigned residents in parts of province other than those in which the above petitioners reside, heartily endorse the above petition, and beg most earnestly to press its prayer upon the attention of the government.

Names.	Place of Residence.	P. O. Address.
C. H. Lloyd	St. Elmo.	St. Elmo, B.C.
J. W. Sutherland.	"	"
Geo. Vance.	Ruby Creek.	Ruby Creek.
W. Crey.	St. Elmo.	"
W. Boxley.	"	"
J. Johnson	"	"
Frank McKay.	Kats Landing	"
C. Inkman.	Agassiz	Agassiz and Ruby Creek.
B. Vance.	"	"
H. Fooke.	Ruby Creek.	Ruby Creek.
J. C. Faucher.	St. Elmo.	St. Elmo P. O.

P.C. 1941 1902.

PRIVY COUNCIL, CANADA,
THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA,
AT GOVERNMENT HOUSE,
VICTORIA, B.C., December 20, 1902.

SIR.—I have the honour to transmit to you herewith, a copy of a Minute of the Executive Council, approved by me on the 15th instant, covering an application to the Governor General in Council for approval of the construction of a bridge across the Fraser river at New Westminster.

This application is made in accordance with the provisions of ‘An Act respecting certain works constructed in or over navigable waters,’ Cap; 92 R. S. Canada.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) H. G. JOLY DE LOTBINIERE,
Lieutenant Governor.

The Honourable the Secretary of State,
Ottawa, Canada.

SESSIONAL PAPER No. 120

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.

COPY of a Report of a Committee of the Honourable the Executive Council, approved by His Honour the Lieutenant-Governor on the 15th day of December, 1902.

The Committee of Council have had before them the report, hereto annexed, of the Chief Commissioner of Lands and Works referring to the bridge that the Provincial Government proposes to construct across the Fraser river and intimating that the provisions of 'An Act respecting certain works constructed in or over navigable waters', being Chapter 92 of the Revised Statutes of Canada had been complied with, and recommending that application be made to the Governor in Council for approval of the said undertaking.

The Committee concur in the said recommendation and advise that a copy of this Minute, if approved, be forwarded to the Honourable the Secretary of State.

VICTORIA, December 13, 1902.

(Sd.) W. W. B. McINNES,
Clerk, Executive Council.

To His Honour the Lieutenant-Governor in Council:

The undersigned has the honour to report for the consideration of the Council the following: That due notice having been given, in pursuance of the statute in that behalf being Revised Statutes of Canada, Chapter 92, in the *British Columbia Gazette* of the sixth November, 1902, that this Government would proceed with the construction of a certain bridge over the navigable waters of the Fraser river at New Westminster, B.C., and that the plans and specifications had been deposited in the office of the Minister of Public Works of Canada at Ottawa and in the office of the District Registrar of Titles, New Westminster, B.C., and that application will be made after the expiration of one month from the date of said notice to the Governor General in Council for authorization and approval of said works, plans and specifications, and to recommend that this application be made in accordance with the said notice, and that a copy of this Minute, if approved, be forwarded to the Secretary of State through the usual channel.

Dated this sixth day of December, A.D. 1902.

W. C. WELLS,
Chief Commissioner of Lands and Works.

P.C. 203.

CERTIFIED copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General, on the 10th February, 1903.

The Railway Committee of the Privy Council, submit an Order of the said railway committee approving of the plans and site of a proposed highway and railway bridge to be built by the Department of Lands and Works, of the Province of British Columbia, across the Fraser River at New Westminster, B.C., as shown on the said plans; the detail plans of the said bridge superstructure and of the substructure respectively, to be submitted to and approved by the government Chief Engineer of Railways and Canals before the commencement of the work on said superstructure and substructure, respectively, all subject to the approval of the Governor General in Council.

The committee recommend that the said order of the Railway Committee be approved accordingly.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

(Order.)

The Department of Lands and Works of the Province of British Columbia, having applied, pursuant to the Railway Act, to the Railway Committee of the Privy Council of Canada, for approval of the plans and proposed site of a highway and railway bridge to be constructed by that department across the Fraser River at New Westminster as shown on the plans submitted and filed under No. 10619 and the Department of Public Works of Canada, having reported that there is no objection to the proposed structure, the said committee, after due consideration, hereby approves of the plans and proposed site of the said bridge, the detail plans of the said bridge superstructure and of the substructure, respectively, to be submitted to and approved by the government Chief Engineer of Railways and Canals before the commencement of the work on said superstructure and substructure, respectively, all subject to the approval by His Excellency the Governor in Council, on a joint report thereon from the Honourable the Ministers of Railways and Canals and Public Works.

(Sgd.)

ANDW. G. BLAIR,

Chairman.

OTTAWA, February 3, 1903.

(Certified true copy.)

P.C. 547.

To the Right Honourable

Sir WILFRID LAURIER, Knight Grand Cross of the Most Distinguished Order of St. Michael and St. George, Privy Councillor and President of the King's Privy Council in and for the Dominion of Canada.

The Memorial of the Legislative Assembly of the Province of Ontario.

HUMBLY SHEWETH:

That there is now being constructed by a board of commissioners, appointed under the authority of an Act of the Legislature of this province, a railway from North Bay to the head of Lake Timiskaming,—a distance of one hundred and twelve miles,—known as the Temiskaming and Northern Ontario railway.

That in projecting the said railway the Legislature deemed it of the utmost importance to afford access to the arable lands known as the great clay belt of New Ontario and estimated to contain sixteen million acres, being an area almost as great as that of the lands now under cultivation in the older districts of Ontario.

That the settlement of the said clay belt is of the utmost importance to the Province of Ontario, as it would furnish homes for many thousands of our young men who are disposed, on account of the occupation of the farm lands in the older parts of the province, to settle in other parts of Canada or possibly to remove to the United States.

That, by the settlement of these lands, a widened market would be furnished for the various industries of the province, and the addition in wealth and population resulting would the better enable Ontario to maintain her relative position among the other provinces of the Dominion.

That this Legislature believed that the construction of a railway under its own authority, and not as a matter of private enterprise was in the public interest as affording greater control over rates for passengers and freight, and such connections

SESSIONAL PAPER No. 120

with other railway lines as might the more efficiently serve the best interests of the people.

That in the settlement of the newer districts of Ontario and in the development of the resources of the country, this Legislature while contributing to the wealth of the whole Dominion is assuming burdens for which under our constitution there is no return, as the subsidy from the Dominion is based not upon the increase of the population from one decade to another, but upon the population fixed at the time of Confederation and that accordingly one of the great advantages to be derived from the burdens assumed by this Legislature accrues to the Dominion and not to the province.

That, in view of the projection of the Grand Trunk Pacific railway, the Temiskaming and Northern Ontario railway will be of material advantage to the Dominion of Canada, inasmuch as it will afford immediate connection with older Ontario and important facilities for the transportation of supplies for construction purposes, and to that extent reduce the cost of the Grand Trunk Pacific to the Dominion of Canada.

That with the usual subsidy from the Dominion Government this Legislature might be encouraged, providing its income from other demands upon the Treasury Department were not impaired, to continue said railway as far as James Bay, thus affording another seaport for the Dominion of Canada, which might be of great practical utility in trans-Atlantic trade in the near future.

That, in view of the burdens which the Province of Ontario will necessarily bear, by reason of its large population and wealth, in the construction of a considerable portion of the Grand Trunk Pacific, and in view of the contribution which the construction of the Temiskaming and Northern Ontario Railway will necessarily make to the population of Canada and in view of the subsidies already granted to other railways of no greater importance, in the opinion of your memorialists, as a public enterprise than the said Temiskaming and Northern Ontario railway, your memorialists would earnestly press upon the attention of the Dominion Government the propriety of granting the usual subsidy of three thousand two hundred dollars per mile to the said railway and any extension thereof and such additional subsidy as other railways under similar circumstances are allowed.

And your memorialists as in duty bound will ever pray.

(Sgd.) W. A. CHARLTON.

Speaker of the Legislative Assembly of the Province of Ontario.

(174135)

OTTAWA, September 11, 1896.

To the Hon. J. I. TARTE,

Minister of Public Works, Ottawa.

DEAR SIR,—In the interview with the deputation from the farmers' convention from the Fraser River valley British Columbia which you were kind enough to grant this morning, I understood you to say that the Dominion Government would be prepared to at once despatch an engineer—who possessed special knowledge of the control of rivers which are subject to floods and changes in their course of flow—to the Fraser River valley in British Columbia in order to act in conjunction with an engineer to be appointed by the provincial government with a view to making a joint report to their respective governments on the best and most economical mode of procedure for protecting the lands now subject to overflow from damage from floods; also that the said engineers should report upon the area of land which can be

2 GEORGE V., A. 1912

effectively so protected and the cost of the necessary works which would have to be operated, each government to bear the expense of its own engineer. That in event of the report of the engineers proving satisfactory to the two governments that negotiations should then be entered into as to what proportion each government should bear in the necessary expenditure for carrying out the projected works.

If I am correct in my judgment of the result of our interview I shall be obliged by your informing me of the same and I would ask that the engineer appointed by the Dominion Government be instructed as soon as possible to put himself in communication with the Chief Commissioner of Lands and Works at Victoria who will at once associate him with the engineer to be appointed by the provincial government.

I am, dear sir,

Yours faithfully,

(Sgd.) JAMES BAKER,

Provincial Secretary B.C.

No. 174135.

September 14, 1896.

DEAR COLONEL BAKER,—In reply to your letter of the 11th instant, I am glad to be able to inform you that I will be disposed to co-operate with your government in reference to the examination of the Fraser River in British Columbia, to which you refer in that letter.

I will, as soon as session is ended, take steps to appoint an engineer, who will act in conjunction with the one who will be appointed by your government for the above purpose.

It is to be understood of course, that the direction of the survey will be in the hands of the engineer appointed by my department, in order to be able to take advantage of the survey which has already been begun by us, and on which we have already expended a considerable sum of money.

The expenditure in connection with this survey will be jointly defrayed by your government and my department.

Believe me, dear Colonel Baker,

Yours very truly,

(Sgd.) J. I. TARTE.

Hon. JAS. BAKER,

Provincial Secretary of British Columbia, Ottawa.

File No. 2494—9 B.

No. 178843.

VICTORIA, B.C., December 23, 1897.

To Hon. J. I. TARTE, Ottawa.

This Government had not been advised until quite recently that a vote was passed in House of Commons for protection works at Revelstoke. No vote was passed by provincial legislature towards such work nor was it contemplated. No arrangement for co-operation made.

(Sgd.) J. H. TURNER.

SESSIONAL PAPER No. 120

File No. 2494—9 B.
No. 189239.

655 K.

PRIVY COUNCIL, CANADA.

PROVINCE OF BRITISH COLUMBIA,
GOVERNMENT HOUSE,
VICTORIA, B.C., January 10, 1898.

SIR,—I have the honour to transmit herewith, a certified copy of an approved Minute dated December 30 last, with the report therein mentioned, expressive of the willingness of my Government to contribute the sum of \$15,000 towards the cost of the erection of permanent works at the Town of Revelstoke, in this province, to protect the banks of the Columbia River from the action of its waters at that place. The plans therefor as prepared by my government's engineer will be forwarded you by express.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) THOS. R. McINNES,

*Lieutenant Governor.*The Hon. the SECRETARY OF STATE,
Ottawa, Canada.File No. 2494—9 B.
No. 189239.

PROVINCE OF BRITISH COLUMBIA.

CERTIFIED copy of a Report of a Committee of the Honourable the Executive Council, approved by His Honour the Lieutenant-Governor on the 30th day of December, 1897.

On a memorandum from the Honourable the Chief Commissioner of Lands and Works, dated December 29, 1897, enclosing a copy of a report dated December 13, 1897, from F. C. Gamble, Esq., C.E., upon the cause of, and method by which the washing away of the banks of the Columbia river at Revelstoke may be permanently arrested, the Minister calls attention to the imminent danger of the destruction of large areas of valuable ground at the next season of high water in this navigable river, and that the townsite is the property of the Dominion Government who are most interested in its preservation, and recommends that the Provincial Government agree to contribute one-third of the cost of the necessary permanent protection works, not to exceed \$15,000 provided the Dominion Government undertake to carry out the works without delay. And the Minister further recommends that the report and accompanying plans, together with a copy of this Minute if approved, be at once forwarded to the Honourable the Minister of the Interior with a request that he will move his Government to such measures and immediate action as the urgency of the matter requires.

The Committee of Council advise approval of the foregoing recommendation.

(Sgd.) JAMES BAKER,

Clerk, Executive Council.

2 GEORGE V., A. 1912

File No. 2494—9 B.
No. 189239.

NELSON, B.C., December 13, 1897.

SIR,—I have the honour to inform you that in accordance with the instructions contained in your letter of October 13 last, I have made a survey and examination of the Columbia river at Revelstoke for the purpose of devising and suggesting a method by which the washing away of the river bank at that place may be permanently arrested, and now beg to submit for your consideration the following report embodying, besides a brief description of the natural characteristics of the vicinity, suggestions as to the best manner of affording the protection required, and an estimate of the cost of the proposed works.

Appended hereto are the following plates:—

No. 1. A general plan of the Columbia river in the neighbourhood of Revelstoke embodying the town site, and extending from the 'big eddy' to a point below the smelter, a distance of 1.97 miles, plotted to a scale of 300 ft. to 1 inch.

No. 2. Cross sections of river from section 'A' above the bridge to section No. 3 below, inclusive. These sections owing to their great length have been platted on the distorted scale of 20 feet to the inch vertically and 100 feet to the inch horizontally.

No. 3. Cross sections of the river from section No. 4 to section No. 11, inclusive, platted to the natural scale of 40 feet to the inch.

No. 4. Plan and sections from 'C' to 'E' showing the proposed method of protection.

The above plates will be frequently referred to in the course of this report where necessary by numbers given above.

Severe weather having set in before all the necessary information could be obtained, the work has been carried on at great disadvantage. Revelstoke lies, so to speak, at the meeting point of several converging valleys, and in consequence, the banks of the river are exposed to the full force of the wind which at times blows so heavily as to make instrumental work often a matter of difficulty, and, at times, impossible.

The land comprising the townsite of Revelstoke outside of lots now owned by private parties and by the local Government, is held in the following manner:—

1. The Dominion Government controls the land (a) of the old townsite of 'Farwell' which extends from the railway bridge as far east as Wales street, and (b) between Ford and Government streets, in the newly built portion of the town.

2. The Columbia and Kootenay Steam Navigation Company own the property between Ford and Wales streets.

3. The Smelter Company own all the land lying east of Government street up to the railway's property, and down the river to the smelter.

4. The Canadian Pacific Railway hold the remaining unsold portion of the site lying to the east and north of the smelter property.

The boundaries of the several properties above described and defined on the general plan (Plate No. 1) by heavy dotted lines.

The adjacent land both north and south of the town, as well as on the opposite side, is still controlled for the most part by the Dominion Government.

The town is laid out on the east and left bank of the Columbia river, on what may be termed a terraced bench, of no great width, formed by a deposition of alternate layers of strata (not always strictly horizontal) of sand and gravel, superimposed upon a bed of clay (Plate No. 3) along the base of the mountain lying in the angle of the confluence of the Columbia river and Illicilliwaet river. The ground occupied by the old town, formerly called Farwell, which stretches down stream about 2,700 feet below the bridge, is at an elevation of from 36.8 feet to 41.2 above the level of water recorded last November, and from 15.5 feet to 22.3 feet above the highest water recorded, that of the freshet of 1894, (Plate No. 2). The ground then rises 27 feet to the terrace or upper bench on which many new residences and business houses, all the new churches,

SESSIONAL PAPER No. 120

public schools and court house lately built (Plates 1 and 3); this terrace or upper bench continues for 3,200 feet to the smelter where the ground drops to 27 feet above the low water stage above referred to (Sec. 11 Plate No. 3).

The Canadian Pacific Railway, upon leaving the canyon of the Illicilliwaet river on its westward course, skirts the margin of the bench close to the foot hills for about three miles, and then, turning to the left traverses the bench to the Columbia river, which it crosses by a timber bridge. From the foregoing description, taken together with the general plan (Plate No. 1) it will be observed that the greater and most valuable part of the townsite, viz., that on which the principal buildings are built, is confined to a narrow strip of land lying between rugged mountains and a large, rapid and ever encroaching river.

The railway bridge is about 1,100 feet in length and is composed of two spans of about 104 and 120 feet respectively, 4 spans of about 154 feet each (all the spans were measured approximately from centre to centre of piers) and about 260 feet of trestling. The piers are 6 in number of which 5 are about 8 feet in width and about 63 feet long over all, that is measured from the rise of the cut water to the lower end, while the remaining one is about 4 feet wide by the same length.

At the present time the piers stand about parallel with the direction of the current (Plate No. 1) four only obstructing the stream at low water. The pier of the shore span on the east side stands on cribwork which extends now about 25 feet into the river acting like a wing-dam. It was doubtless built first well into the bank, but its effect, together with that of the piers, on the current has caused the bank both above and below to recede. The piers with this cribwork reduce the waterway at the bridge site at ordinary high water by 71 feet or about $\frac{1}{3}$ of the total width. At extreme high water when the flats opposite the town are flooded the flow is further obstructed by an earth embankment which has lately taken the place of trestle work formerly reaching from the bridge to the ridge near the 'big eddy.' A gap, however, has been left in this embankment with the intention of affording passage for the water when the flats are overflowed.

The erosion of the river bank in the vicinity of Revelstoke is confined to the east or left hand side, on which the town stands, and prevails from the 'big eddy,' some 4,500 ft. above the railway bridge, to point 'G' below the smelter (Plate No. 1) a total distance of 10,400 ft. Of this latter distance 5,900 ft. represents the river frontage of the town. No cutting of the bank goes on, except the wasting away due to seepage, during low water as the current at that time flows steadily the water being clear, between shelving beaches of gravel and sand. As the river rises during the warm weather the water, charged with sediment, attacks with increasing energy the successive friable strata of the concaved bank. As this bank recedes the shelving beach opposite builds out.

The destructive force of the current, serious enough when exerted uninterruptedly against the bed on bank of a river composed of unstable material, is aggravated by the presence of any obstruction which checks the free flow of the water.

Obstructions may be either drift wood or snags, piers, or abutments of bridges, embankment or wing-dams or in fact anything the tendency of which is to back up and thereby disturb the existing conditions. It has probably been observed that a strong current may flow for years, without attacking either the bank or bed of the stream although both may consist of easily moved material. This means that the resistance of the bed and the force of the current are in equilibrium. As soon, however, as the flow is interrupted by wing-dams or any like obstructions, no matter how slight, equilibrium is destroyed, and both bed and bank are disturbed.

Such appears to have been the case at Revelstoke. Before the bridge was built the erosion of the concave bank from the 'big eddy' past the townsite though constant was comparatively slight, and could have been stopped at a small cost. As soon how-

2 GEORGE V., A. 1912

ever as the piers were built, their design and position relative to the current being of marked importance, the direction and flow of the current was interrupted and changed, whereby counter currents and eddies were generated, the natural effort of the river to adapt itself to the new condition. The deepening of the bed both between and below the piers followed, the excavated material being carried down stream enlarging and extending in a compact manner the bars in that direction. To ensure the safety of the piers large quantities of loose rock were afterwards thrown into the river around them. This again compelled the river to readjust itself. This enlargement of the bar forced the current at a more acute angle against the bank below (Sec. 4 Plate No. 1).

A comparison of Sec. 'A' with Sec. 'B' taken along the centre of the bridge will give some idea of the modifications that have taken place. Since 1894 the bridge superstructure has been renewed and the ridges appearing between pier No. 1 and on the east side (Sec. at Bridge Plate No. 2) seem to indicate that the position of some of the piers have been changed. The eddies about the bridge soon attacked the east bank with the result that the cribwork there, doubtless intended as an abutment, it could serve no other useful purpose, soon became a wing-dam possessing all the damaging characteristics attributable to such structures.

The effect of this unintentional wing-dam is shown on Sec. No. 1 (Plate No. 2) where a deep hole appears close to the toe of the mattress. Both above and below the bridge during the freshet of 1894, the cutting became of such a serious nature as not only to endanger the safety of the part of the old town, but also that of the bridge. During the next winter the Dominion jointly with the local government undertook the protection of the bank, for a distance of 1,600 feet by means of brush mattresses laid along the face of the bank. The effort was successful. The railway company the following season continued the brush protection, though not in as substantial a manner, for some few hundred feet up stream as far as the brewery (Plate No. 1).

The substitution of an earth embankment, completed since 1894, for the trestling across the flat land on the west side, notwithstanding the gap left therein for the passage of water, will assist in backing the water up above the bridge during an extreme freshet. This will increase, at such time, both the volume and velocity of the water, forcing a passage between the piers with the result that, by reason of the property of inertia, the river section below will again be modified, and it is impossible to say in what direction or to what extent.

The water rose in 1894 to a much higher level than any previous recorded years, and there is a strong probability that, on account of the rapid denudation of the country of the timber, the summer freshets of future will often come with greater suddenness and in greater volume. This probability must not be lost sight of.

In dwelling upon the part the railway bridge has borne in the damage done directly by the river current, the intention has been simply to illustrate the evil results that invariably follow the placing of any casual obstruction purposely or otherwise in a large and rapid river. No great change in the present situation can be expected, but it will be pointed out, however, hereinafter in what way the railway company may possibly consent, by way of compensation, to render some assistance towards the effort it is proposed to undertake to guard permanently against future damage.

The natural forces tending to destroy the river bank on which in this report the most stress is laid, is the river current cutting on the face, and the pressure outwards of the seepage water. These are without doubt the most important, but it must not be overlooked that rain, snow, frost, and wind have very destructive influences upon it. A constant crumbling of the finer material of the upper strata is observable. During a heavy wind the fine sand torn from the face is often driven in clouds over the

SESSIONAL PAPER No. 120

bank, the gravel loosened thereby rolling to the bottom. It does not appear that this matter should be attended to by the government. It seems only reasonable that the property owners should after the bank is protected up to high water, attend to this matter at their own cost. It might be met by sowing Guinea, Bermuda or Marrum grass on the exposed face above the mattresses. Any one of these are suitable for sandy soil and having creeping roots will soon form a mat capable of resisting the action of the weather.

From the lower end of the mattress protection, referred to above, which appears to be in a fair state of preservation though requiring some attention, to section 4 at the lower end of the old steamboat landing, the erosion has been very slight and needs no special remarks. Below the landing the river has made the most serious inroad upon the bank, as far as the smelter, that is, along the river front of the properties of the Dominion and Smelter Company, a distance of 3,200 feet (Plate No. 1).

The destructive work of the current has been aided here by the seepage of water through the exposed face of the bank. This seepage may be attributed to the accumulation in low places, lying between the railway and the river bank, of the surplus water of the many streams flowing from the mountain side north of the track, which, owing to the choked condition of the railway ditches, the natural channel, and side drains, is unable to find its way quickly to the outlet below the smelter (Plate No. 1); the water thus collected sinks through porous strata to the underlying bed of clay along the top of which, in a depression or underground channel, it flows towards the river. The clay which in a dry state offers no inconsiderable resistance to the current becomes when surcharged with water a quicksand, or, as it is often called, 'gumbo.' During a high stage of water in the river the seepage water gathers on top of the clay which, in consequence, becomes saturated. As the river falls the pressure along the face of the bank is gradually withdrawn and the clay in the form of a quicksand is forced out by the back pressure of the accumulated seepage water causing landslips or subsidiaries. The material thus displaced yields more easily to the action of the current.

At the lower end of this bend the smelter now stands on the edge of the bank, one corner overhanging it. There has been excessive erosion of the bank here, the severity of which may be attributed to the unfortunate construction of a wing-dam built by the railway or smelter company at the upper end of the wharf. The remains of the dam, a combination of piling, brush and stone show up at the present stage of water about 50 feet above section 10 (Plate No. 1). This wing-dam was intended to protect the wharf as well as the smelter. It has done neither. The wharf is now in a dilapidated condition, utterly useless. The smelter is the same. And the river bank below, as well as above, is rapidly washing away.

On the upper end of the islands on the right hand side below the bridge the accumulation of drift has somewhat increased. This may be due to the drift caught in the eddies on that side and are eventually caught by its predecessors.

The fall of the river surface between section 'A' above the bridge and section 11, below the smelter, a distance of 7,100 feet, is about 5.5 feet. The velocity of the current is of course variable depending, between fixed points, upon the slope, the configuration of the bed and shore, and the material composing the latter. But it may be safe to assume that in no place where the slope is slight is the mean velocity less than two miles an hour, and where the greatest fall occurs with a uniform bed does it exceed eight miles an hour.

It has been frequently asserted that the natural and original channel at Revelstoke lies altogether on the west side and that it would be a very simple matter to throw the channel over to the side where it properly belongs. The existence of the 'big eddy' with other physical and unchangeable characteristics (see Plates Nos. 1, 2 and 3) is somewhat against this contention. But at any rate a river flowing over a sedimentary

2 GEORGE V., A. 1912

bed and between sedimentary banks has no natural or original channel except that which is bounded by the rim rock on either side.

It is assumed that it is intended to undertake no work of which a reasonable guarantee of permanency cannot be given, and it is on this line that the suggestions following are made.

To thoroughly protect the river bank in the vicinity of Revelstoke exposed to the action of the current, it would be necessary to commence at the point opposite the 'big eddy' and carry the work down stream in a uniform and uninterrupted manner along the east bank to the point 'G' below the smelter. This would involve the removal of the cribwork at the bridge referred to hereinbefore as an objectionable structure, serving at present no useful purpose, the repair and extension of the 1,600 feet of the mattress protection below the bridge, the removal of the wharf at the smelter, the extension of a protection work to point 'G' and the improvement of the drainage of the stream flowing from the mountain whereby the damage arising from the seepage of water and accumulated in the low places back of the town, may be mitigated.

Many suggestions, crude but nevertheless valuable, have been made regarding the best method to follow in dealing with this question of bank protection. The writer's opinion is that it can best be accomplished, not by means of a wing-dam, or any other obstruction, the evils of which it has been the intention to make plain in the description given above of the works in connection with the railway bridge and smelter, placed in the stream for the purpose of diverting the flow from the eroding bank, but by a system of a bank protection which will, while offering the minimum of obstruction to the free and natural flow of the current, render the bank permanently stable. It seems to be the prevailing impression, due probably to the practice in placer mining, that a wing-dam built below the bridge, stretching from the east side down stream towards the west side, would force the water permanently in the desired direction in a new channel. It would be an exceedingly dangerous experiment to make in a large and rapid river such as the Columbia, flowing as it does, at the point under reference, over a bed and between banks of a sedimentary character, and having a difference of level between high and low water stages, in round numbers of 20 feet. It would be possible at great cost to construct a wing-dam in the direction desired, but no guarantee could be given of its stability after exposure to the force of the first freshet. Its failure would be inevitable and disastrous.

To undertake the whole of the work outlined above would involve the outlay of a large sum of money, and, in consequence, it is desirable for the present, to confine the expenditure to the most critical points, that is, where the destruction of the most valuable parts of the town is imminent. Therefore the work proposed herein will be confined to the bank below the bridge.

(1.) In the first place it is necessary as the river has not yet adjusted itself to the new condition at the bridge to extend and repair in some measure the mattress protection constructed in 1895 from 'B' to 'C' on the general plan (Plate No. 1). This will necessitate the sinking of a narrow and shallow mattress along the toe of the old work, and the building up of several depressions. If the railway company could be persuaded to remove the cribwork and substitute therefor brushwork a dangerous factor would be removed.

(2.) From the lower end of the mattress ('C' on Plate No. 1) down to section 4 ('D' on Plate No. 1) at the end of the old landing (Plate No. 1) the cutting, if any, is trifling, but at the same time there is no saying what may occur to induce it. For this reason, as well as for the sake of continuity in the work, a shallow mattress should be laid between these points.

(3.) From point 'D' round the bend to the smelter point 'E' (Plate 1) is the part requiring immediate and most careful attention. The work proposed here shall conform generally to the method adopted before, but with certain modification and

SESSIONAL PAPER No. 120

improvements, which, it is anticipated, add materially to its effectiveness, and permanency. This method, shown on Plate No. 4, consists in laying a brush mattress, kept in place by rock along the face of the bank varying in thickness from the fine tops of the brush laid on the bottom below low water mark, to about 18" at 4 feet above extra high water. The toe of the mattress will lay on the bottom at a distance from the bank sufficient to allow for the probable maximum depth should securing of the bed take place. At about a mean of high water an artificial bank presenting a uniform face to the current will be built up of brush, from which will extend up and down the face of the bank, spurs or ribs at 20 feet centres. These besides giving additional stability will intercept a sediment with which generally the brush will become covered, thereby adding to the life of the work. The bank would thus be rendered unassailable and the current in consequence will be gradually, but not violently forced away from it. The coarsest gravel and boulders from the bar opposite will be utilized in weighting the brush. The brush will be paid in alternate layers continuously upon the face of the bank and bound together securely with No. 6 galvanized iron wire, and clamps of timber held together with iron rods. The continuity of the work is a desirable feature and makes it immovable and practically indestructible. It has been advanced, and with reason, that the part of the brush subjected to wet and dry alternately will decay rapidly. It will do so no doubt but not as rapidly as supposed, especially if it becomes covered and crusted with sediment. It can be more readily and economically repaired than any other timber structure in a like position. To protect the bank with practically indestructible material, such as masonry or concrete, is impossible, the cost would be too great.

To meet the seepage difficulty it is absolutely necessary that the water of the mountain streams back of the town should be carried off as rapidly as possible by the natural channel to the outlet at the smelter, thereby reducing to a minimum the accumulation of water in the low places between the mountain and the river bank. To this end besides enlarging and otherwise improving the natural channels, it is proposed that the railway company should be approached and asked to enlarge and keep clear the ditches on both sides of the track and, if necessary, to ensure the rapid removal of the water from the north side, to increase the number of culverts. The fall from point 'F' to point 'E' (Plate No. 1) is 67 feet.

In order that the work may be completed in a thoroughly satisfactory manner before the next freshet, it should be commenced forthwith and carried on under a skilful superintendent with a large and efficient force of men. Work of this character can be executed by days labour more expeditiously, satisfactorily and economically than by contract. There are only from four to four and a half months left to do the work in, and, consequently, a commencement should be made immediately after the new year.

The cost of the work suggested above is estimated at \$46,035.

(1) From 'B' to 'C' Plate No. 1 extending and repairing old work.. . . .	\$ 2,500
(2) From 'C' to 'D' Plate No. 1 new work 1,100 ft. at \$6.	6,600
(3) From 'D' to 'E' Plate No. 1 (a) new work 3,200 at \$10	32,000
(b) Clearing and enlarging channel of stream and side ditches from 'F' to 'E' to carry off water from mountain streams 2,500 cubic yards at 30 cts.. . . .	750
	<hr/>
	\$41,850
Add 10% for contingencies and engineering expenses.. . .	4,185
	<hr/>
	<u>\$46,035</u>

2 GEORGE V., A. 1912

To thoroughly complete the protection, the remains of the wharf at the smelter should be removed, and the brush work carried on down to 'G' (Plate No. 1.)

I have the honour to be, sir,

Your obedient servant,

(Sgd.) F. C. GAMBLE,

M. Inst. C. E.

NOTE.—The plates herein mentioned have been sent to you per Dominion Express Company.

File No. 2494—9 B.

No. 190381.

CANADIAN PACIFIC RAILWAY COMPANY'S TELEGRAPH,

FROM VICTORIA, B.C., February 1, 1898.

To HON. ISRAEL TARTE,
Minister of Public Works,
Ottawa.

Unless work on river protection Revelstoke commences immediately no time to finish before high water when may we expect your answer on subject on terms of our Order in Council. Despatched January 8. Important.

(Sgd.) J. H. TURNER.

File No. 2494—9 B.

No. 190381.

OFFICE OF THE MINISTER OF PUBLIC WORKS OF CANADA,

OTTAWA, February 2, 1898.

Honourable J. H. TURNER,
Prime Minister,
Victoria.

MY DEAR SIR,—Your telegram of February the 1st has caused me some surprise. Nobody knows better than yourself that, owing to your refusal to contribute to the cost of the protection works at Revelstoke, I had to dismiss from the estimates a sum of \$10,500 that had been put at my disposal by parliament for that work. On several occasions you have communicated with me and I have always given you the same answer, which then you cannot possibly ignore. It was in your power to comply with the conditions contained in the vote of the Federal Parliament. You have thought fit not to take advantage of that vote. I am very sorry indeed at your action. But of course you were perfectly free to do what you have done.

Truly yours,

(Sgd.) J. I TARTE.

File No. 2494—9 B.

No. 190382.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA,

VICTORIA, February 12, 1898.

HON. J. ISRAEL TARTE,
Minister of Public Works.

DEAR SIR,—I am duly in receipt of yours of the 2nd instant, and am surprised at its tone. Representations made by members of this Government to Ministers at

SESSIONAL PAPER No. 120

Ottawa have invariably been couched in respectful terms, and I know of no circumstance in connection with the correspondence on the subject of the Revelstoke protection works justifying the curtness and evident temper which your note exhibits.

With respect to the amount on the Dominion Estimates, \$10,500, which you say was dismissed because it had been ignored by this Government, I beg to state that it was not until the early part of the session of last year, some six months afterwards, that we were made aware of such sum being placed on the Estimates of your Department, and I consider that a formal notification of the intention of your Government in this matter would only have been courteous, not to say necessary, as it was one contemplating mutual action.

When the matter was brought to our attention it was during the work of a busy session, and we had not time to obtain the necessary report by an engineer upon which to base an estimate, even if we had regarded it as properly within our rights, which we did not then, and do not yet, think it was.

The contention of this Government is that the damages to the river banks at Revelstoke have been caused by the erosion of navigable waters, over which the Dominion Government alone has control: and that moreover the greater part of the town-site affected is the property of the Dominion Government and the title to which vests in it. Under these circumstances our representations were entitled to greater consideration than you appear to have given them.

However, owing to the danger imminent, and as a matter of local necessity, this Government has decided, without assuming any responsibility as to the action of navigable waters, to take steps to protect the river banks, and has urged your Government to co-operate, I am surprised, in the face of such danger as exists, that you should, even if what you allege were quite true, refuse to join with us now in undertaking protection work, which, in order to avoid disaster, must be done at once.

As you will see by the report of the engineer, which was forwarded to you some time ago, the amount necessary to complete the work will amount to about \$46,000. You will also observe that if the sum of \$20,000 had been expended, it would have been far from making it effective. Parliament is now in session at Ottawa and it should not be difficult, more particularly in view of what has been done in the case of the Stickine-Teslin railway, for you to arrange for the work to go on and have it provided for in the Supplementary Estimates.

I may say in case of disaster occurring whereby property and possibly life may be destroyed, your Department will properly be held responsible by the people of Revelstoke and the province generally.

I am, dear sir,

Very sincerely yours,

(Sgd.) J. H. TURNER,

Minister of Finance.

2 GEORGE V., A. 1912

Telegram dated December 29, 1898, from the Hon. J. I. Tarte to Jos. Martin, not on file.

198590.

No. 3452—98.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.

ATTORNEY GENERAL'S OFFICE,

VICTORIA, B.C., December 31, 1898.

The Honourable J. I. TARTE,

Minister of Public Works,
Ottawa, Ont.

SIR,—Your telegram of the 29th instant duly came to hand. We shall be very glad to see Mr. Roy and consult with him as to the work to be done on the Columbia River at Revelstoke.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) JOSEPH MARTIN,

Attorney General.

File No. 2494—9 B.

No. 200459.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.

ATTORNEY GENERAL'S OFFICE,

VICTORIA, B.C., March 18, 1899.

The Honourable J. I. TARTE,

Minister of Public Works,
Ottawa, Ont.

My DEAR MR. TARTE,—Although we have had several interviews with Mr. Roy with regard to the work now going on of protecting the banks of the Columbia River at Revelstoke, and it is understood that the manner in which the work is being done by our engineer, Mr. Gamble, is quite satisfactory to Mr. Roy and your Department, still there has been no formal communication from your Department with regard to this matter. As your House is now in session, I hope you will be able to assure us officially that at least one half of the cost of this work will be reimbursed to us by the Dominion Government.

Yours faithfully,

(Sgd.) JOSEPH MARTIN.

File No. 2494—9 B.

No. 265824.

CABINET DU PREMIER MINISTRE.

OTTAWA, le 19 avril 1899.

MON CHER TARTE,—Je vous mets sous ce pli une lettre de notre ami Jos. Martin, sur laquelle j'attire votre attention.

Bien à vous,

(Sgd.) WILFRID LAURIER.

L'hon. J. I. TARTE,

Ottawa.

SESSIONAL PAPER No. 120

File No. 2494—9 B.
No. 265824.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.

ATTORNEY GENERAL'S OFFICE,

VICTORIA, B.C., April 11, 1899.

The Right Hon. Sir WILFRID LAURIER,
Ottawa, Ont.

My DEAR SIR WILFRID,—When I was east, at the time I had the pleasure of meeting you in Quebec, I saw Mr. Tarte in Montreal and had an understanding with him with regard to protecting the river bank at Revelstoke in this province. On the faith of this understanding, the Government here have spent about \$40,000 in connection with this work. Mr. Tarte's agreement was that the Dominion would pay one half the cost. I have just received a letter from him, stating that the matter would come before your council in connection with the supplementary estimates.

I drop you this note to let you know that this is a very important matter, and I hope there will be no difficulty whatever in connection with the appropriation. I have written Mr. Bostock to call and see you in connection with the matter, as he understands the importance of it. If the Dominion Government fail to carry out the understanding that we had, it would place Liberals in this province, including Mr. Bostock, in a very awkward position.

I may say that Mr. Tarte had a brush with Mr. Turner, the late Premier of this province, in connection with this matter, and in regard to which Mr. Tarte came out away ahead, but the result of it was that the appropriation which had been made by the Dominion Government for the purpose of paying one half the cost of said work was, for the time being lost to the province.

Yours faithfully,

(Sgd.) JOSEPH MARTIN.

File No. 2494—9 B.
No. 201477.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA,

LANDS AND WORKS DEPARTMENT,

VICTORIA, B.C., May 6, 1899.

SIR,—I have the honour to inform you that the total cost of the protection works at Revelstoke amounts to \$33,175.83, as follows:—

Wages and materials.	\$32,358 48
Engineering and incidentals.	817 35
	<hr/>
	\$33,175 83

By arrangement made this amount is to be borne jointly by the two governments, and I have, therefore, to request you to provide the sum of \$16,587.91.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) F. CARTER COTTON,

Chief Commissioner of L. & W.

Hon. J. I. TARTE,
Minister of Public Works,
Ottawa, Ont.

2 GEORGE V., A. 1912

No. 198514.

Telegram.

To Hon. J. I. TARTE,
Ottawa.

From Victoria, B.C.
November 23, 1899.

What about my conversation with you as to Dominion paying half cost of work at Revelstoke?

(Sgd.) JOSEPH H. MARTIN.

File No. 2494—9 B.

No. 209212.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA,
LANDS AND WORKS DEPARTMENT,
VICTORIA, December 11, 1899.

COLUMBIA RIVER AT REVELSTOKE.

MY DEAR MR. TARTE,—Adverting to the previous correspondence which has passed between us, relating to the promise of your Government to contribute one half of the cost of protecting the bank of the Columbia river at Revelstoke, I have now the pleasure of enclosing a statement of the expenditure, amounting to \$33,107.53, made by the Government of British Columbia in connection with this work, certified to by Mr. J. R. Roy, Resident Engineer of the Department of Public Works of Canada.

The amount, therefore, to be contributed by the Dominion Government is \$16,553.76.

May I ask that you will kindly arrange for the payment to this Government of the \$10,000 appropriated at the last session of the House of Commons for this purpose, and that a further sum of \$6,553.76 is placed in the estimates for the coming year to complete the contribution of the Dominion Government?

You will observe that the total expenditure comes within the estimated cost of the work, viz., \$34,100.

Mr. Roy expressed himself to me as satisfied with the effectiveness and substantial character of the work and doubtless he has so expressed it in making his report to you.

I am, dear sir,

Yours truly,

(Sgd.) F. CARTER COTTON,

Chief Commissioner of Lands and Works.

SESSIONAL PAPER No. 120

File No. 2494—9 B.

No. 209212.

STATEMENT of Expenditure by the Government of British Columbia on Protection Works, near Revelstoke, Columbia River, year ending June 30, 1899.

One-half the amount to be repaid by the Dominion Government.

Pay lists—Foreman, assistants, labourers & teams..	\$24,438 46
Can. Pacific Ry. Co.—Freight charges, tickets, telegrams and wire.	1,146 33
Dominion Wire Rope Co.—Galvanized wire..	662 31
Albion Iron Works—Bolts, nuts, washers, &c..	894 97
Hamilton Powder Co.—Dynamite, fuse..	306 57
Bourne Bros.—Tools, camp utensils, groceries, tent, &c..	661 11
F. Robinson—Lumber..	903 15
Morris & Steed—Tools, tents, camp utensils, rope, &c..	109 74
W. M. Lawrence—Tools, stoves, range, kettles, &c..	427 89
J. Keonaghan—Office building, snow ploughs, extra work in office..	246 75
C. B. Hume & Co.—Groceries, vegetables camp utensils, &c..	577 27
F. McCarty—Meat, freight charges, &c..	222 42
F. C. Gamble—Travelling expenses, \$511.90; stationers, \$8.25..	520 15
J. R. Hull & Co.—Meat..	60 33
R. Howson & Co.—Chairs, tables, &c..	19 35
Canada Drug Co.—Stationery, &c..	32 50
Revelstoke Saw Mill—Lumber..	853 96
Revelstoke Iron Works—Repairs, tools, &c..	11 60
S. Smith—Superintending, meals, berths, &c..	485 00
Hotel Revelstoke—Meals and bed for Superintendent Smith..	101 50
A. P. Cummins, P.L.S.—Making cross section of sounding Columbia River, 20 days at \$10..	200 00
A. P. Cummins, P.L.S.—Repairs to transit, includ. express charges.	40 55
T. Righton—Powder, \$15; rent of shack 2 mos., \$2.50..	20 00
F. J. Hamilton—Horse and sleigh (hire)..	9 00
Dominion Express Company—Express charges..	2 20
A. N. Smith—Bread..	6 96
Kootenay Mail—Tender notice for purchase of buildings, &c..	4 90
R. Gordon—Repairs, tools, &c..	1 25
J. D. Bain—Duty, &c., grass seeds and car fare..	9 25
P. Hindman & Co.—Grass seed..	75 00
E. G. Prior & Co.—Augers..	4 70
G. F. Curtis—Stationery..	3 70
Field & Bews—Borax..	1 00
H. Walton—Postage stamps..	4 00
Gilley Bros.—Hauling wire to and from C.P.R., Westminster..	6 00
T. Dunn & Co.—Tools..	5 06
J. McMahon—Repairs, tools, &c..	19 60
D. Jenkins—Repairs to portable forge..	1 00
W. Fleming—Stove, wood, and hauling coal..	10 50
A. G. Grafter—Fare to Green Slides and return..	1 50
Total amount..	\$33,107 53

Certified (Materials delivered)
 (Work performed)
 (Prices fair and just)

(Signed) J. R. ROY,
Resident Engineer.

2 GEORGE V., A. 1912

File No. 2494—9 B.
No. 209701.
118162.

January 20, 1900.

SIR,—Having reference to your letter of the 11th ultimo on the subject of the contribution by this Government towards the cost of the bank protection works in the Columbia River at Revelstoke, B. C., I am directed to state that a recommendation has been made to Council for the payment of the sum of \$10,000 voted by Parliament for the purpose above mentioned.

I have the honour to be, sir,

Your obedient servant,

(Signed) JOS. R. ROY,
Acting Secretary.

F. C. COTTON, Esq.,
Chief Comr. of Lands & Works,
Victoria, B.C.

File No. 2494—9 B.
No. 209701.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.
LANDS AND WORKS DEPARTMENT.

VICTORIA January 30, 1900.

Bank Protection Columbia River.

SIR,—I have the honour to acknowledge the receipt of your letter, No. 118162, dated 20th instant in which you state that a recommendation has been made to Council for payment of the sum of \$10,000 voted by the Parliament of Canada as contribution of the Dominion Government towards the cost of the river bank protection at Revelstoke, B.C.

I have the honour to be, sir,

Your obedient servant,

(Signed) F. C. GAMBLE,
Public Works Engineer.

Jos. R. Roy, Esq.,
Acting Secretary,
Department of Public Works,
Ottawa, Canada.

No. 209726.

EXTRACT from a Report of the Committee of the Honourable the Privy Council, approved by His Excellency on February 1, 1900.

On a memorandum dated January 20, 1900, from the Minister of Public Works, submitting that Parliament at its last session, voted the sum of \$10,500 as a contribution towards the cost of bank protection works in the Columbia river at Revelstoke, British Columbia.

The Minister states that the Government of British Columbia have executed the works in question—the amount expended on the same being \$33,107.53, as per statement attached hereto, certified by Mr. Jos. R. Roy, resident engineer.

SESSIONAL PAPER No. 120

The Minister therefore recommends that authority be given for the payment to the Government of British Columbia of the sum of \$10,500 granted by Parliament as a contribution towards the cost of bank protection works in the Columbia River at Revelstoke, British Columbia.

The Committee advise that the requisite authority be granted accordingly.

(Signed) JOHN MCGEE,

Clerk of the Privy Council.

The Honourable

The Minister of Public Works.

No. 209726.

STATEMENT of Expenditure by the Government of British Columbia on Protection Works near Revelstoke, Columbia River, Year ending June 30, 1899.

One-half the amount to be repaid by the Dominion Government.

Pay lists—Foreman, assistants, labourers and teams.. . . .	\$24,438	46
Can. Pacific Ry. Co.—Freight charges, tickets, telegrams and wire.	1,146	33
Dom. Wire Rope Co.—Galvanized wire.. . . .	662	31
Albion Iron Works—Bolts, nuts, washers, &c.. . . .	894	97
Hmilton Powder Co.—Dynamite, fuse detonators, &c.. . . .	306	57
Bourne Bros.—Tools, camp utensils, groceries, tent, &c.. . . .	661	11
F. Robinson—Lumber.. . . .	903	15
Morris & Steed—Tools, tents, camp utensils, rope, &c.. . . .	109	74
W. M. Lawrence—Tools, stoves, range, kettles, &c.. . . .	427	89
J. Keonaghan—Office building, snow ploughs, extra work in office..	246	75
C. B. Hume & Co.—Groceries, vegetables, camp utensils, &c.. . .	577	27
F. McCarty—Meat, freight charges, &c.. . . .	222	42
F. C. Gamble—Travelling expenses, \$511.90; stationery, \$8.25.. . .	520	15
J. R. Hull & Co.—Meat.. . . .	60	33
R. Howson & Co.—Chairs, tables, &c.. . . .	19	35
Can. Drug & Book Co.—Stationery, &c.. . . .	32	50
Revelstoke Saw Mill—Lumber.. . . .	853	96
Revelstoke Iron Works—Repairs, tools, &c.. . . .	11	60
S. Smith—Superintending meals, &c.. . . .	485	00
Hotel Revelstoke—Meals and bed for Superintendent Smith.. . . .	101	50
A. P. Cummins, P.L.S.—Making cross section of sounding Colum- bia River, 20 days at \$10.. . . .	200	00
A. P. Cummins, P.L.S.—Repairs to transit, includ. express charges.	40	55
T. Righton—Powder, \$15; rent of shack 2 mos., \$2.50.. . . .	20	00
F. J. Hamilton—Horse and sleigh (hire).. . . .	9	00
Dominion Express Company—Express charges.. . . .	2	20
A. N. Smith—Bread.. . . .	6	96
Kootenay Mail—Tender notice for purchase of buildings, &c.. . .	4	90
R. Gordon—Repairs, tools, &c.. . . .	1	25
J. D. Bain—Duty, &c., grass seeds and car fare.. . . .	9	25
P. Hindman & Co.—Grass seed.. . . .	75	00
E. G. Prior & Co.—Augers.. . . .	4	70
G. F. Curtis—Stationery.. . . .	3	70
Field & Bews—Borax.. . . .	1	00
H. Walton—Postage stamps.. . . .	4	00
Gilley Bros.—Hauling wire to and from C.P.R., Westminster.. . .	6	00

2 GEORGE V., A. 1912

T. Dunn & Co.—Tools.. . . .	\$ 5 06
J. McMahon—Repairs, tools, &c.. . . .	19 60
D. Jenkins—Repairs to portable forge.. . . .	1 00
W. Fleming—Stove, wood, and hauling coal.. . . .	10 50
A. G. Grafter—Fare to Green Slides and return.. . . .	1 50

Total amount.. . . . \$33,107 53

Certified (Materials delivered)
(Work performed)
(Prices fair and just)

(Signed) J. R. ROY,
Resident Engineer.

File No. 2494—9 B.
No. 210636
118593.

February 19, 1900.

SIR,—Adverting to previous correspondence on the subject of the contribution of this Government towards the cost of the protection works executed in the Columbia river at Revelstoke, I now have the honour to inclose to you herewith a cheque for the sum of \$10,500 being the amount voted by Parliament at its last session for the works in question.

I have the honour to be, sir,
Your obedient servant,

(Sgd.) J. R. ROY,
Acting Secretary.

The Hon. F. C. COTTON,
Commissioner of Lands and Works,
Victoria, B.C.

File No. 2494—9 B.
No. 210636.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.
TREASURY DEPARTMENT,
VICTORIA, February 27, 1900.

J. R. ROY, Esq.,
Acting Secretary, Department of Public Works,
Ottawa.

SIR,—I have the honour to acknowledge the receipt of your letter of the 19th instant No. 118593, inclosing the Department's cheque for \$10,500 as the amount voted by the Dominion Parliament last session towards the cost of the protection works on the Columbia river at Revelstoke executed by this Government.

I herewith inclose official receipt for same.

I have the honour to be, sir,
Your obedient servant,

(Sgd.) ALFRED FLETT,
Deputy Minister of Finance.

SESSIONAL PAPER No. 120

File No. 2494—9 B.
No. 210636.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.

TREASURY DEPARTMENT,

VICTORIA, February 27, 1900.

(\$10,500.)

Received from Department of Public Works, Ottawa, the sum of ten thousand five hundred dollars being the amount voted by the Dominion Parliament towards the cost of the protection works at Revelstoke, executed by the Provincial Government.

(Sgd.) ALFRED FLETT,
Deputy Minister of Finance.

File No. 2494—9 B.
No. 216597.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.

LANDS AND WORKS DEPARTMENT,

VICTORIA, July 27, 1900.

Bank Protection—Columbia River at Revelstoke.

SIR,—Having reference to the previous correspondence relating to the contribution of the Government of the Dominion of Canada towards the cost of the works executed for the protection of the bank of the Columbia river at Revelstoke, I have now the honour to ask that the balance of one-half of the cost to be contributed by your Government, viz:—

\$6,053.76 will be remitted to this Government. This sum, I am informed, was voted at the last session of the House of Commons for the purpose.

The account stands as follows:—

Total cost of works as set forth in statement of account to the Hon. the Minister of Public Works in letter dated December 11, 1899, signed by Mr. J. R. Roy, resident engineer.. . . .	\$33,107 53
One half to be contributed by the Government of the Dominion of Canada.. . . .	16,553 76
Cheque forwarded by the Department of Public Works of Canada in letter No. 118593 dated February 17, 1900.	10,500 00
	<hr/>
Balance due.. . . .	\$ 6,053 76
	<hr/>

I have the honour to be, sir,

Your obedient servant,

(Sgd.) W. C. WEBBS,

Chief Comr. of Lands and Works.

The Hon. the MINISTER OF PUBLIC WORKS,
Ottawa, Ont.

2 GEORGE V., A. 1912

File No. 2494—9 B.
No. 216597.

OFFICE OF THE MINISTER OF PUBLIC WORKS OF CANADA.

OTTAWA, August 2, 1900.

To the Hon. the CHIEF COMMISSIONER OF LANDS AND WORKS,
Victoria, B.C.

SIR,—I have the honour to acknowledge receipt of your communication of the 27th ultimo, addressed to the Honourable the Minister of Public Works, with reference to the sending of the amount to be contributed by this Government for the bank protection of the Columbia river at Revelstoke. In reply, I beg to inform you that the Hon. Mr. Mulock, who is acting as Minister of Public Works in Mr. Tarte's absence, is out of town for a few days and that as soon as he is back I will place your letter before him for his consideration.

Yours faithfully,
(Sgd.)
Assistant Private Secretary.

File No. 2494—9 B.
No. 217485.
122145.

August 20, 1900.

SIR,—I have the honour to forward to you, herein enclosed, a cheque for the sum of \$6,053.76 in payment of the contribution of the Government of the Dominion of Canada towards the cost of the works executed by the Government of British Columbia, for the protection of the bank of the Columbia River at Revelstoke.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) J. R. ROY.

Acting Secretary.

The Chief Commissioner of Lands and Works,
Victoria, B.C.

File No. 2494—9 B.
No. 217485.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA,
LANDS AND WORKS DEPARTMENT,
VICTORIA, August 27, 1900.

Columbia River Bank Protection.

SIR,—I have the honour by direction of the Honourable the Chief Commissioner of Lands and Works to acknowledge receipt of your favour of 20th inst. together with cheque for \$6,053.76 being balance of one half cost of the Revelstoke protection work as agreed.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) WM. McNEILL,

Secretary.

J. R. Roy, Esq.,
Acting Secretary,
Department of Public Works,
Ottawa, Ont.

SESSIONAL PAPER No. 120

File No. 2494—9 B.

No. 217485.

No. 540.

GOVERNMENT OF BRITISH COLUMBIA,
TREASURY, VICTORIA, August 23, 1900.

\$6,053.76.

Received from Dominion Government the sum of six thousand and fifty-three 76/100 dollars being balance of one half cost of the Revelstoke protection works as agreed.

(Sgd.) ALFRED FLETT,
Deputy Minister of Finance.

(Letter of February 8, 1907, from the Commissioner of Lands and Works, B.C., not on file.)

No. 308017.

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.
LANDS AND WORKS DEPARTMENT.

VICTORIA, September 13, 1907.

Revelstoke District.

SIR,—I beg to call your attention to the amounts expended by the Province of British Columbia during the past year on river protection work at Revelstoke on the Columbia River and at Chilliwack on the Fraser River. These works we have always claimed should have been undertaken and carried out by the Federal Government, but as the danger was imminent and pressing we had to see the necessary work done.

The amounts expended are as follows:

Revelstoke.. . . .	\$39,416 20
Chilliwack.. . . .	16,931 70
	<hr/>
	\$56,347 90

I would ask you to give this matter your careful consideration and trust you will see your way clear to have provision made in your next Estimates for a refund to the Province of the above amount.

I beg to point out in connection with our claim that in 1899-00 a similar matter namely the expenditure of \$33,107.52 at Revelstoke, was taken up with your Department, and a refund of half the amount was arranged and paid to the Province; so that if you cannot see your way clear to refund the whole of the amount first mentioned above, I would ask that the same course be followed in this case and that we be rebated one half said amount.

Trusting this matter will commend itself to your favourable consideration.

I have the honour to be, sir,

Your obedient servant,

(Signed) FRED. J. FULTON,
Chief Commissioner of Land W.

(Letter dated September 17, 1907, to Minister, not on file.)

2 GEORGE V., A. 1912

308017.

September 25, 1907.

FRED. J. FULTON, Esq.,
Chief Commissioner of Lands and Works,
Victoria, B.C.

SIR,—I am directed to acknowledge the receipt of your letter of the 13th instant, drawing attention to an expenditure of \$56,347.90, incurred by your department during the past year on river protection work at Revelstoke on the Columbia River and at Chilliwack on the Fraser River. In reply, I beg to state that the question of refunding the amount to your Government will have careful consideration.

I have the honour to be, sir,

Your obedient servant,

(Signed) F. GELINAS,
Secretary.

P.C. 2533.

310614.

EXTRACT from a Report of the Committee of the Privy Council, approved by the Governor General on November 21, 1907.

On a memorandum, dated November 19, 1907, from the Minister of Public Works submitting that on April 14, 1907, a large field of ice loosened by the rise of water in the Columbia river was carried by a rapid current directly against the dam erected at Revelstoke, B.C., causing a gap in it of about 60 feet by a depth of about 5 feet.

That the height of water during the spring and summer has prevented the work of repairs to the broken dam being attended to, but now, the water having lowered sufficiently to allow of these repairs being carried out, it is important that they be done without delay as the ice which will soon form will considerably increase the damages.

That the accident in question was brought to the attention of the Department of Public Works in the first days of the month of May last, after the prorogation of Parliament, and, in consequence, no provision could be made in the way of a grant of money for the execution of the repairs.

The Minister states that in consequence of the present low stage of water which permits of proceeding with such repairs, estimated by the Chief Engineer of the Department of Public Works at \$10,000, it is a matter of urgent necessity that the repairs should be executed without delay in order to prevent any further damages by the ice and the possible utter destruction of the work.

The Minister, therefor, recommends, the necessity being urgent and the Minister of Finance having reported that there is no parliamentary provision from which the expenses can be defrayed, that a special warrant of His Excellency the Governor General do issue for the sum of \$10,000 for the execution of the repairs to the dam at Revelstoke, Columbia River, B.C., a similar amount to be included in the supplementary estimates for 1907-1908.

The Committee submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,

Clerk of the Privy Council.

SESSIONAL PAPER No. 120

File No. 2494—9 B.
No. 316365.THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA.
LANDS AND WORKS DEPARTMENT,

VICTORIA, February 13, 1908.

Revelstoke and Chilliwack Districts.

SIR,—I herewith beg to confirm telegrams which passed between us recently, as follows:—

January 31, 1908.

‘To the Hon. the MINISTER OF PUBLIC WORKS,
Ottawa, Ont.

‘Immediate necessity exists carry on works costing five thousand dollars to protect bank of Fraser river at Chilliwack. This Government consented last year to contribute five thousand dollars Dominion Government contributing like amount for similar protection aid the work at Chilliwack to extent one half estimated cost namely two thousand five hundred dollars.

‘(Sgd.) FRED FULTON,
Chief Commissioner.’

‘FRED. J. FULTON,
‘Chief Commissioner, Victoria.

February 4, 1908.

‘*Re* your telegram January thirtieth kindly furnish reasons why Federal Government should assist in work requested at Chilliwack. Is this not a matter for provincial authorities?

‘(Sgd.) WM. PUGSLEY, *Minister.*’

‘Hon. WM. PUGSLEY,
Minister of Public Works, Ottawa.

February 4, 1908.

‘Reply your telegrams this date, reason work required is that Fraser a navigable river and should properly be entirely undertaken by Federal Government. Precedents at Revelstoke on Columbia and Matsqui on Fraser.

‘(Sgd.) FRED. J. FULTON, *Chief Commissioner.*’

and have now to acknowledge your reply of the 6th instant reading as follows:—

‘F. J. FULTON,
Chief Commissioner L. & W., Victoria.

OTTAWA, February 6, 1908.

‘Have considered request *re* Chilliwack and am prepared to recommend to Council that Federal Government aid work there to extent one half estimated cost, amely two thousand five hundred dollars under same conditions as Matsqui.

‘(Sgd.) WILLIAM PUGSLEY,
Minister of Public Works.’

and for which I beg to express my thanks.

In this connection I desire to draw your attention to the fact that on September 17, 1907, a letter was addressed to you by myself giving the amounts expended by this Government in protection works at Revelstoke on the Columbia river, and at Chilliwack on the Fraser river, up to that time. The amount for Chilliwack therein specified as being \$16,931.70 was inserted through an oversight, as this amount was for protection work at another point and one where the work would have to be provided for provincially. I find, however, that in a previous letter to the Minister of Public

2 GEORGE V., A. 1912

Works, under date February 8, 1907, signed by Hon. R. G. Tatlow, Chief Commissioner of Lands and Works, the expenditures for Chilliwack up till the end of the year 1906 are correctly enumerated, and totalled the sum of \$42,396.58. In addition to this amount there was expended on similar work at this point during the year 1907, \$110.26, and to the end of January of the present year \$136.50 making a total to January 31, 1908 of \$42,643.34, expended in the construction of works to prevent the encroachment of the Fraser river in order to secure the safety of the Chilliwack dyke. This sum, together with the expenditure for Revelstoke stated in my letter of September 13 before mentioned, namely \$39,416.20 make a sum total of \$82,039.54. I may add that for the remainder of the present year there is an estimated expenditure of \$5,000 to aid in further protection work at Chilliwack.

It will not be necessary for me to review the grounds upon which the Government requests the Dominion to reimburse this province in the amounts above stated. A reference to the communication of February 8, 1907, herein referred to, will demonstrate the strong claims of the province in this regard, and I can only urge that you give the whole question your consideration at an early date, as it is most desirable that a proper understanding be reached regarding same.

I beg to urge, in addition to the above, the question of the Dominion Government assuming the whole expenditure of the protection works at Matsqui and Chilliwack, and that the Federal Government will be pleased to reimburse this province in the total sum thus expended, as well as to assume, in future, any works necessary to prevent any encroachment of the rivers in question on their banks.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) F. J. FULTON,

Chief Commissioner of L. & W.

File No. 2494—9 B.
No. 316365.

February 20, 1908.

SIR,—In Honourable Dr. Pugsley's absence for a few days from Ottawa, I beg to acknowledge receipt of your letter of the 13th instant, with regard to protection works at Chilliwack, on the Fraser river, and in reply to state that your communication will be brought to the attention of the Minister upon his return to the city.

Yours truly,

(Sgd.)

For Private Secretary.

FRED. J. FULTON, Esq.,
Chief Commissioner, Lands and Works,
Victoria, B.C.

No. 317321.

April 21, 1908.

SIR,—With further reference to your favour of February 13, 1908, addressed to the Honourable the Minister of Public Works, asking that the Government of the Province of British Columbia be recouped for expenditures incurred in bank protection work on the Columbia and Fraser rivers, I beg to state that this Department cannot see its way to make payment, in view of the fact that the works in question were not authorized.

Yours truly,

(Sgd.) J. B. HUNTER,

Acting Deputy Minister.

FRED. J. FULTON, Esq.,
Chief Commissioner, Lands and Works,
Victoria, B.C.

SESSIONAL PAPER No. 120

THE GOVERNMENT OF THE PROVINCE OF BRITISH COLUMBIA,
LANDS AND WORKS DEPARTMENT,
VICTORIA, May 20, 1908.

No. 318752.

4783/7-8.

Revelstoke District.

SIR,—I have the honour to acknowledge receipt of your communication of the 21st ult. in reference to the question of the desired re-imbusement by this Government of certain sums expended in the protection of the banks of the Columbia and Fraser rivers, and have duly noted contents of same.

In this connection I desire to point out that while the work in question may not have been authorized, at the same time they were absolutely necessary; and that further in the year 1898 or 1899, the Dominion Government refunded to this Government certain sums expended for similar work performed under similar conditions and which had not been previously authorized, and I trust the question will be given reconsideration as a consequence.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) FRED. J. FULTON,

Chief Commissioner of L. & W.

The Deputy Minister of Public Works,
Ottawa, Ont.

